Some Examinations from Different Governorates

1 Cairo Governorate

Answer the following questions : (Calculator is allowed)

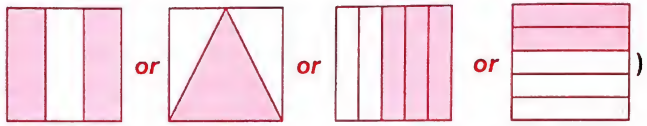
1 ***Choose the correct answer from those given :***

(a) The following expected number to complete this pattern :
50 , 46 , 42 , 38 , 34 , ... (32 *or* 30 *or* 28 *or* 24)

(b) If $x - 3 = 5$, then x = ... where $x \in \mathbb{Z}$ (-8 *or* -2 *or* 2 *or* 8)

(c) If the area of one face of a cube equals 9 cm^2 , then its total area = ... cm^2 (12 *or* 27 *or* 36 *or* 54)

(d) Which of the following figures the shaded area represents $\frac{2}{3}$ of the square?

()

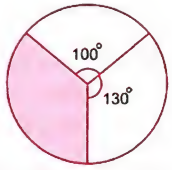
2 ***Complete the following :***

(a) $|-2| + 2$ = ...

(b) Probability of the impossible event equals .....

(c) 15 + 17 + (– 15) = ...

(d) **In the opposite figure :**
Measure of the central angle of the shaded circular sector equals .....°



3 (a) Find the solution set of the inequality : $3x - 2 < 7$ where $x \in \mathbb{N}$, then represent it on the number line.

(b) Find the result of : $\frac{(-2)^4 \times 2^3}{2^5}$

4 (a) Find the solution set of the equation : $2x + 1 = 9$ where $x \in \mathbb{Z}$

(b) The circumference of a circular garden is 157 metres. Find :
(1) The length of the diameter of the garden in metres.
(2) The area of the garden in square metres. ($\pi \simeq 3.14$)

5 (a) On the lattice , determine each of the following points :
A (1 , 1) , B (3 , 1) and C (3 , 2) , then find :
(1) The length of $\overline{BC}$
(2) The image of the triangle ABC by the translation ($x + 3$, $y + 2$)

(b) ***The following table shows the percentages of the production of electrical sets in a factory :***

Kind of the set	Refrigerator	Cooker	Heater	TV
The percentage of the production	30 %	20 %	25 %	25 %

Represent the previous data by a pie chart.

2 Giza Governorate

Answer the following questions : (Calculator is allowed)

1 ***Complete the following :***

(a) The equation $4x^2 + 2 = 6$ of the ..... degree.

(b) The total area of the cube with 3 cm. edge length = ... cm^2

(c) The image of the point A (2 , 5) by translation ($x + 1$, $y - 2$) is .....

(d) If $X \subset \{2 , -3\} \cap \{5 , -3\}$, then X = ...

2 ***Choose the correct answer :***

(a) An integer included between – 2 , 1 is .....
(-2 *or* -1 *or* 3 *or* -3)

(b) The measure of the angle for the circular sector of half a circle is .....°
(90 *or* 120 *or* 180 *or* 270)

(c) If $x = |-2|$, $y = -3$, then xy = ... (5 *or* -5 *or* 6 *or* -6)

(d) If a fair die is tossed once , then the probability of appearing of the number 5 = ... (zero *or* $\frac{1}{6}$ *or* $\frac{5}{6}$ *or* 1)

3 (a) (1) Find the result of : $\frac{7^4 \times 7^5}{7^7}$

(2) Find the solution set of the inequality : $x - 2 < 1$ in $\mathbb{N}$

(b) Calculate the surface area of the circle of diameter length 14 cm.

4 (a) Find the solution set of the equation : $3x + 7 = 4$ in $\mathbb{Z}$

(b) The total area of a cuboid is 132 cm^2 and its lateral area is 112 cm^2. Calculate the area of its base.

5 (a) A box contains 5 white balls , 8 red balls all of them are symmetric , a ball is selected without looking it , what is the probability that the selected ball is :

(1) White. (2) Red.

(b) ***The following table shows the percentage of the production of a factory of electric sets :***

Type of the set	Washing machine	Heater	Cooker	TV
Percentage of the production	30 %	15 %	40 %	15 %

Represent these data by pie charts.

3 Alexandria Governorate

Answer the following questions :

1 ***Choose the correct answer from those given :***

(a) $|-5| + 3$ ..... $\mathbb{Z}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

(b) Twice the number y subtracted from it 4 , the symbolic expression for this situation is ..... ($y - 4$ or $2y - 4$ or $y + 4$ or $2y + 4$)

(c) If the set of substitution is $\{1 , 2 , 3 , 4\}$, then the set of solution of the equation = $x + 6 = 10$ is ..... ($\{1\}$ or $\{2\}$ or $\{3\}$ or $\{4\}$)

(d) If the probability that the pupil solve the problem is 0.7 , then the number of problems expected to be solved from the same kind from 20 problems equals ..... (7 or 10 or 14 or 20)

2 ***Complete the following :***

(a) The surface area of the circle = ...

(b) The set of even numbers $\cap$ the set of odd numbers = ...

(c) The ascending order of the numbers : $(-9) , 17 , |-9| , -15 , 16$ is .....

(d) Sample space for tossing a coin once = ...

3 (a) Find the solution set of inequality : $2x - 3 \geq 1$ where $x \in \mathbb{Z}$, then represent it on the number line

(b) A cube of edge length 6 cm. , find its lateral area and its total area.

4 (a) ***The following table shows the percentage of the production of a factory of house electrical sets :***

The kind of set	Washing machine	Heater	Cooker	Mixture
The percentage	30 %	15 %	40 %	15 %

Represent these data by circular sectors.

(b) Find the solution set in $\mathbb{Z}$ of the equation : $2x + 9 = -23$

5 (a) Find the result of : $\frac{(2)^5 \times (-2)^3}{(-2) \times (2)^4}$

(b) In the Cartesian coordinates plane , locate each of the following points A (2 , 3) , B (4 , 3) , C (4 , 5) , then find the image of Δ ABC by the translation (0 , – 4) on the drawing.

4 El-Kalyoubia Governorate

Answer the following questions :

1 ***Choose the correct answer between brackets :***

(a) $(-1)^{105} + (-1)^{20}$ = ... (2 or 1 or – 1 or zero)

(b) If $x + 2 = |-5|$, then x = ... (– 7 or 7 or 3 or – 3)

(c) There are 40 pupils in a classroom. If the probability of the pupils who succeed is 0.7 , then the number of the pupils who are expected to fail = ... (28 or 20 or 12 or 15)

(d) The total area of a cube is 600 cm^2, then its edge length = ... cm. (5 or 10 or 6 or 100)

2 ***Complete each of the following :***

(a) $\mathbb{Z}^+ \cup \{\text{zero}\}$ = ...

(b) The image of the point (5 , 4) by translation $(x + 2 , y - 3)$ is .....

(c) A circle whose circumference is 44 cm., then its radius length is ..... cm. ($\pi = \frac{22}{7}$)

(d) The descending order of the numbers : – 9 , 2 , 5 , – 12 is .....

3 (a) Find the solution set of the equation : $2x + 7 = 3$ in $\mathbb{Z}$

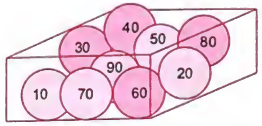
(b) A box without a cover in the shape of a cuboid. Its length is 16 cm., its width is 7 cm. and its height is 19 cm. Find :

(1) Its lateral area. (2) Its total area.

4 (a) Find the value of : $\frac{(-2)^6 \times 2^4}{(-2)^7 \times 2^2}$

(b) ***In the opposite figure :***

A box contains 9 symmetrical cards numbered from (10 to 90) which are mixed together and a card was drawn randomly.



Calculate the probability of each of the following events :

(1) A number divisible by 5 (2) A number divisible by 3

(3) An odd number.

5 (a) Find the solution set of the inequality : $3x - 5 \leq 4$, $x \in \mathbb{N}$

(b) ***The following table shows the percentage of the most favourite subjects to 6^{th} primary students :***

Subject	Arabic	Math	Science	English
The percentage	35 %	25 %	15 %	25 %

Represent these data by a pie chart.

5 El-Sharkia Governorate

Answer the following questions :

1 ***Choose the correct answer :***

(a) $P \cap E =$ ..... ({2} or {3} or {5} or {7})

(b) The greatest integer number satisfies the inequality $3 \leq x < 6$ is .....

(3 or 4 or 5 or 6)

(c) The measure of the angle of the circular sector which represents $\frac{1}{2}$ the circle equals .....° (45 or 60 or 90 or 180)

(d) If F is an odd number , then the even number in the following is .....

(F^2 or $F^2 + F$ or $2F + 1$ or F^3)

2 ***Complete the following :***

(a) 2 , 6 , 18 , 54 , ... , ... (in the same pattern)

(b) The side lengths of a triangle are 3 cm., 4 cm., 5 cm. , then its perimeter = ... cm.

(c) If a die is tossed once , then the probability of getting an even number = ...

(d) The point (a , b) , its image is (5 , – 4) by the translation (2 , – 3) , then the coordinates of the point (a , b) = ...

3 (a) Find the result of : $\frac{(-8)^3 \times (8)^4}{(-8)^7}$

(b) Find the solution set of the inequality : $2x + 9 < 1$ where $x \in \mathbb{Z}$, then represent the solution set on the number line.

4 (a) A circle , its diameter length is 12 cm. Calculate its surface area.

(Consider $\pi = \frac{22}{7}$ or 3.14)

(b) Find the solution set of the equation : $6x + 2 = 14$ where $x \in \mathbb{Z}$

5 (a) A case in the shape of a cuboid , its length is 7 cm. , its width is 5 cm. and its height is 3.5 cm. Find its lateral area and its total area.

(b) ***The following table shows the percentages for producing chickens in four farms monthly :***

Farm	1^{st}	2^{nd}	3^{rd}	4^{th}
The percentage of production	40 %	25 %	20 %	15 %

Represent these data by circular sectors.

6 El-Monofia Governorate

Answer the following questions : (Calculator is allowed)

1 ***Complete each of the following :***

(a) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ .....

(b) The image of the point (2 , 1) by translation (x , $y - 3$) is (..... , ...)

(c) If S is a sample space of a random experiment , then P (S) = ...

(d) The face area of a cube is 4 cm^2 , then its volume = ... cm^3

2 ***Choose the correct answer between brackets :***

(a) $(-1)^{100} + (-1)^{101}$ = ... (1 *or* -1 *or* zero *or* -2)

(b) The number which if it is added to its double , the result will be 9 , is ..... (2 *or* 3 *or* 4 *or* 5)

(c) The multiplicative identity in the multiplication of natural numbers , added it to 99 = ... (zero *or* 1 *or* 99 *or* 100)

(d) Select one card from a box contains 10 cards numbered even number from 2 to 20 , then the probability of appearing of a number divisible by 3 is ..... (0.2 *or* 0.3 *or* 0.4 *or* 0.5)

3 (a) Find in $\mathbb{N}$ the S.S. of the equation : $2x + 6 = 4$

(b) Find the result of : $6 \times [(-2) + (-7)]$ (Use the distribution property)

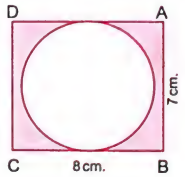
4 (a) Find the solution set of the following inequality in $\mathbb{Z}$: $x + 4 < 7$, then represent it on the number line.

(b) ***In the opposite figure :***

ABCD is a rectangle where its length = 8 cm.

and its width = 7 cm.

Calculate the area of the shaded part. $\left(\pi = \frac{22}{7}\right)$



5 (a) A box without lid in the shape of a cuboid , the inner dimensions of its base are 2 m. and 3 m. and its inner height is 1 m. It is wanted to cover its side faces and its floor by a metallic sheets , the price of one square metre is L.E. 15

Find the price of the needed metallic sheets.

(b) ***When asked students of a classroom for their favorite TV programs show follows :***

Kind of the programs	Musician	Cultural	Sporting
The percentage	15 %	25 %	.....

Complete the table , then represent these data by using the circular sectors.

7 El-Gharbia Governorate

Answer the following questions :

1 ***Choose the correct answer :***

(a) $\frac{9}{20}$ = ... % (9 *or* 18 *or* 27 *or* 45)

(b) The number which satisfies the inequality $x > -2$ is ..... (-1 *or* -2 *or* -3 *or* -4)

(c) If $x = -1$, $y = -2$, then the negative number in the following is ..... ($x + y^2$ *or* $x^2 + y$ *or* $x^2 - y$ *or* $x^2 + y^2$)

(d) At throwing a fair die and observing the upper face , then the probability of getting a number greater than 6 = ... ($\frac{1}{2}$ *or* $\frac{1}{6}$ *or* zero *or* $\varnothing$)

2 ***Complete :***

(a) If $\frac{5}{9} = \frac{15}{x}$, then x = ...

(b) $19 - |-9|$ = ...

(c) If the perimeter of one face of a cube equals 12 cm. , then its total area = ... cm^2

(d) A class of 50 pupils. If the probability of success for those pupils in the end year exam is 0.8 , the expected number for the pupils who will succeed = ... pupils.

3 (a) Find the solution set in $\mathbb{Z}$ of the equation : $3x + 2 = -19$

(b) ***In the opposite figure :***

M is a circle of radius length 14 cm. is divided into 8 equal circular sectors. Find :

(1) The area of one circular sector.

(2) The measure of the central angle of a sector. $\left(\pi = \frac{22}{7}\right)$

4 (a) Find the solution set in $\mathbb{Z}$ of the inequality : $1 - 8x < 33$, then represent the solution set on the number line.

(b) A room in the form of a cuboid , its inner dimensions are 7 m. , 5 m. and 3.5 m. height , it is wanted to paint its lateral walls and the ceiling. The cost price of one square metre of paint is L.E. 11 Calculate the required cost.

5 (a) Find the result of : $\frac{9^6 \times (-9)^3}{9^2 \times (-9)^5}$ by showing the steps.

(b) ***The following table shows the percentages of production of a factory for three kinds of electric water heaters :***

The kind	First	Second	Third
The percentage of the production	55 %	30 %	15 %

(1) Represent these data by circular sectors.

(2) If the total production in the factory is 2000 heaters , find the number of heaters of the second kind.

8 El-Dakahlia Governorate

Answer the following questions :

1 ***Complete :***

(a) If $2y = 8$, then $y + 3 =$ .....

(b) $-3^2 + 1 =$ .....

(c) The point (x , y) , its image $(5 , -4)$ by translation $(2 , -3)$, then the coordinate of the point $(x , y) =$ (..... , ...)

(d) 275 cm. ≃ ..... (to the nearest metre)

2 ***Choose the correct answer between brackets :***

(a) Measure of central angle of circular sector is 60° , then it represents ..... from surface area of the circle. ($\frac{1}{4}$ or $\frac{1}{5}$ or $\frac{1}{6}$ or $\frac{1}{8}$)

(b) If the probability a pupil solve the problem is 0.7 , then the number of expect problems from 20 problems is .....

(13 or 7 or 14 or 27)

(c) Salma paid L.E. x to bought three pens , then the price of each pen is L.E. ..... ($\frac{3}{x}$ or $\frac{x}{3}$ or $3x$ or $3 + x$)

(d) $3^2 + 3^2 + 3^2 =$ ..... (3^6 or 9^2 or 3^3 or 9^6)

3 (a) Find in $\mathbb{Z}^+$ the solution set of the inequality : $2x + 1 < 9$

(b) ***In the opposite figure :***
This figure represents a rectangle where its length = 10 cm., its width = 7 cm. and two semicircles , find the area of the figure. $\left(\pi = \frac{22}{7}\right)$

4 (a) By using the properties of addition in $\mathbb{Z}$, find the result of :
$-15 + 29 + 15$ (State the property used in each step).

(b) A cuboid , its height is 10 cm., the perimeter of its base is 32 cm. and the length of its base is 9 Find :

(1) The lateral surface area of the cuboid.

(2) The total surface area of the cuboid.

5 (a) Find in $\mathbb{Z}$ the solution set of the equation : $2x + 12 = 8$

(b) ***The following table shows ratios of the number of students participated in school activities :***

Activity	Cultural	Sports	Social	Arts
The ratio	25 %	30 %	20 %	25 %

Represent these data by circular sectors.

9 Ismailia Governorate

Answer the following questions : (Calculators are permitted)

1 ***Complete the following :***

(a) $(-5) \times |-4| =$ .....

(b) The image of the point $(1 , -2)$ by translation $(3 , 4)$ is .....

(c) The measure of the angle of the circular sector whose area represents $\frac{1}{6}$ from the area of the circle = ...

(d) Tossing a regular die once , then the probability of appearance of a number less than 3 is .....

2 ***Choose the correct answer between brackets :***

(a) $\mathbb{N} - \mathbb{Z}^+ =$ ..... ($\mathbb{Z}$ or $\mathbb{N}$ or $\{0\}$ or $\varnothing$)

(b) The least prime number is ..... (1 or 2 or 3 or 5)

(c) Number of axes of symmetry for the rhombus is .....

(zero or 1 or 2 or 4)

(d) The greatest integer that satisfies the inequality $5x <$ zero is .....

(-1 or zero or 1 or 5)

3 (a) Find the result of : $\frac{7^5 \times (-7)^4}{7^5 \times 7^3}$

(b) Find the solution set of the following equation : $4x - 7 = 5$ (in $\mathbb{Z}$)

4 (a) The sum of edge lengths of a cube is 60 cm. Calculate its lateral area.

(b) Find the solution set of the following inequality : $x + 3 \geq 1$ (in $\mathbb{Z}$)

5 (a) A box contains balls numbered from 1 to 9 , one ball is selected at random. What is the probability that the selected ball :

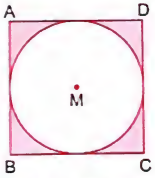
(1) Carries an even number.

(2) Carries a number greater than 6

(b) ***In the opposite figure :***

A circle M is drawn inside a square ABCD , AB = 20 cm.

Calculate the area of the shaded part ($\pi \simeq 3.14$)



10 Suez Governorate

Answer the following questions : (Calculator is allowed)

1 ***Complete the following :***

(a) $(-3) \times (-5)$ = ...

(b) $\frac{a^m}{a^n} = a^{\cdots\cdots}$ where m , n $\in \mathbb{Z}^+$, m > n

(c) The image of the point A (2 , – 1) by the translation ($x - 1$, y + 3) is .....

(d) ..... is an experiment in which we can determine all its possible outcomes before carrying it , but we can't predict in certainly which of these outcomes will occur when the experiment is carried out.

2 ***Choose the correct answer :***

(a) $6^2 \times 6$ = ... (12 *or* 18 *or* 36 *or* 216)

(b) If $5x - 7 = 13$, then x = ... (6 *or* 5 *or* 4 *or* 8)

(c) The lateral area of cuboid = perimeter of the base × .....

(height *or* length *or* width *or* the base)

(d) A fair die is thrown once , then the probability of appearing the number 3 equals ..... (zero *or* $\frac{1}{6}$ *or* $\frac{5}{6}$ *or* 1)

3 (a) Find the solution set of the inequality : $2x + 1 < 5$ where $x \in \mathbb{N}$, then represent the solution set on the number line.

(b) Find the solution set in $\mathbb{Z}$ of the equation : $2x + 9 = 3$

4 ***In the opposite figure :***

A circle of radius length 7 cm. is divided into 8 equal circular sectors.

(1) Find the surface area of the circle M

(2) Find the area of one circular sector.

5 (a) Arrange the following numbers in an ascending order :

$|-9|$, 2^2 , -5 , zero and $|7|$

(b) ***The following table shows the percentages of the production of electric sets (4 kinds) :***

Type of the set	TV	Washing machine	Refrigerator	Cooker
Percentage of the production	35 %	25 %	15 %	25 %

Represent these data by pie charts.

11 Port Said Governorate

Answer the following questions :

1 ***Complete the following :***

(a) $\mathbb{Z}^- \cap \mathbb{N}$ = ...

(b) A circle of diameter length 8 cm. , then its area = ... π cm^2

(c) The additive identity + the multiplicative identity = ...

(d) ..... is a subset of the set of sample space , the number of its elements represents number of times its occurrence.

2 ***Choose the correct answer from those given :***

(a) $(-1)^3 + (1)^3$ = ... (zero *or* 1 *or* – 1 *or* 2)

(b) If $x + 2 = |-4|$, then x = ... (– 2 *or* 2 *or* – 6 *or* 6)

(c) If a $\in \{2, -5, -3\} \cap \{5, -2, -3\}$, then a = ...

(– 3 *or* 2 *or* 5 *or* – 5)

(d) At throwing a fair die and observing the upper face , then the probability of getting a number greater than 6 equals .....

(0.5 *or* $\varnothing$ *or* 1 *or* zero)

3 (a) Find the result of the following : $\frac{(-2)^7 \times (-2)^5}{(-2)^9}$

(b) The length of a room is 5 metres and its width is 4 metres and its height is 3 metres , it is wanted to paint its walls and ceiling with painting , the cost of painting one squar metre is L.E. 15 Calculate the cost of painting.

4 (a) Find the solution set of the inequality : $x + 4 < 7$ where $x \in \mathbb{N}$, then represent it on the number line.

(b) In the cartesian coordinates plane , locate each of the following points A (2 , 3) , B (4 , 3) , C (4 , 7) , then find the image of Δ ABC by the translation (0 , – 4)

5 (a) Find the solution set in $\mathbb{Z}$ of the equation : $2x + 9 = 3$

(b) ***The following table shows the percentages of production of a factory for three kinds of electric water heater :***

The kind	First	Second	Third
The percentage of the production	25 %	30 %	45 %

Represent these data by circular sectors.

12 Damietta Governorate

Answer the following questions : (Calculators are permitted)

1 ***Complete each of the following :***

(a) The smallest non-negative integer is .....

(b) The set of even numbers (E) – the set of odd numbers (O) = ...

(c) A circle , its area is 25 π cm^2 , then the length of its radius is ..... cm.

(d) The opposite figure represents the grades of 40 students in mathematics exam , without using the protractor , then the measure of the central angle of the sector representing the grade "very good" = ...°

2 ***Choose the correct answer from those given :***

(a) $3^2 + 3^2 + 3^2 = 3^{.....}$ (8 *or* 6 *or* 4 *or* 3)

(b) The probability of the impossible event = ... (zero *or* 1 *or* 2 *or* ∅)

(c) A cube , its volume is 1000 cm^3 , then its lateral area = ... cm^2 (600 *or* 500 *or* 400 *or* 200)

(d) The solution set of the equation : $2x = -8$ in $\mathbb{N}$ is ..... ({– 4} *or* {4} *or* {2} *or* ∅)

3 (a) Find the result of each of the following :

(1) $\frac{(-5)^4 \times 5^2}{(-5)^5}$ (2) $(-4) \times [(4) + (-5)]$

(b) Find the solution set of the equation : $2x + 3 = 9$ Given that the substation set is {2 , 3 , 4}

4 (a) Find the solution set of the inequality : $3x + 5 \geq 23$ where $x \in \mathbb{Z}$

(b) A box truck for carrying goods in the form of cuboid , its inner dimensions are 4 m. , 3 m. and 2 m. It is wanted to cover its sides and ceiling with an iron sheets , the cost price of square metre is L.E. 30 Calculate the cost of required iron sheets.

5 (a) A basket contains 15 identical balls numbered from 1 to 15 , if one of the balls is chosen randomly. Find the probability that the chosen ball :

(1) Carried a prime number.

(2) Carried a number divisible by 5

(b) Determine in the coordinates plane the rectangle ABCD where A = (4 , 1) , B = (4 , 3) , C = (1 , 3) , D = (1 , 1) , then find the image of the rectangle ABCD by translation $(x + 3 , y + 3)$

13 Kafr El-Sheikh Governorate

Answer the following questions : (Calculators are permitted)

1 ***Complete each of the following :***

(a) The sample space is .....

(b) The sum of measures of all angles accumulative at the centre of a circle equals .....

(c) $-6, -4, -2,$ ..... , ... (in the same pattern)

(d) If $a = 3$, $b = -2$, then the value of : $3\,a\,b =$ .....

2 ***Choose the correct answer from those given :***

(a) $2^3 + 2^2 =$ ..... (10 *or* 12 *or* 32 *or* 64)

(b) All the following numbers satisfy the inequality : $x > -3$ except .....

(zero *or* -1 *or* -2 *or* -4)

(c) If $A = S$, then $P(A) =$ ..... (zero *or* 1 *or* 2 *or* 3)

(d) The image of the point $(-4, 3)$ by translation $(-1, -4)$ is .....

($(-5, -7)$ *or* $(-5, -1)$ *or* $(-7, 3)$ *or* $(-3, -1)$)

3 (a) Find the solution set of the equation : $2x + 9 = -23$ in $\mathbb{Z}$

(b) Find the solution set of the inequality : $3x - 2 \geq 4$ in $\mathbb{Z}$

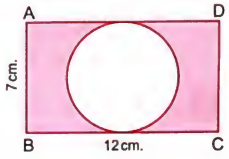
4 (a) ***In the opposite figure :***

ABCD is a rectangle

, its length 12 cm. and its width 7 cm.

A circle is drawn to touch the sides $\overline{AD}$ and $\overline{BC}$

Calculate the area of shaded part where $\left(\pi = \frac{22}{7}\right)$



(b) Use the properties of addition operation in $\mathbb{Z}$ to find the result of :

$(-17) + 19 + 17$ (State the property used in each step)

5 (a) The total area of a cube is 486 cm^2. Find the area of one face and its lateral area.

(b) ***The following table shows the percentage of the production of a factory of house electrical sets :***

The kind of set	Washing machine	Heater	Oven	Mixture
The percentage	30 %	15 %	40 %	15 %

Represent the pervious data by using the circular sectors.

14 El-Beheira Governorate

Answer the following questions :

1 ***Choose the correct answer :***

(a) The image of the point $(3, -2)$ by the translation $(-3, 2)$ is .....

($(0, 0)$ *or* $(2, 0)$ *or* $(3, 0)$ *or* $(6, 4)$)

(b) $\mathbb{Z} - \mathbb{N} =$ ..... ({zero} *or* $\mathbb{Z}^+$ *or* $\mathbb{Z}^-$ *or* $\mathbb{Z}$)

(c) The sum of the measures of all angles accumulative at the centre of a circle equals ..... ($90°$ *or* $108°$ *or* $180°$ *or* $360°$)

(d) $3^2 + 3^2 + 3^2 =$ ..... (2^6 *or* 4^6 *or* 3^3 *or* 2^9)

2 ***Complete the following :***

(a) If $3x + 9 = 0$, $x \in \mathbb{Z}$, then $x =$ .....

(b) $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16},$ ..... (in the same pattern)

(c) If $\varnothing$ is the empty set , then $P(\varnothing) =$ .....

(d) If $a \in \{2, -5, -3\} \cap \{5, -2, -3\}$, then $a =$ .....

3 (a) Find the solution set of the inequality : $3x - 2 < 7$, where $x \in \mathbb{Z}$

(b) Use the properties of addition operation in $\mathbb{Z}$ to find the result of $119 + 191 + (-119)$ (State the property used in each step)

4 (a) Find the solution set of the equation : $2x + 9 = 3$, where $x \in \mathbb{N}$

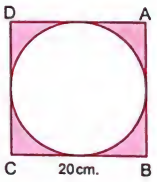
(b) Calculate the lateral area and the total area of a case in the shape of a cuboid if its base is a square of side length 6 cm. and its height is 10 cm.

5 (a) ***In the opposite figure :***

ABCD is a square of side length 20 cm.

Calculate the area of the shaded part.

(Consider $\pi \simeq 3.14$)



(b) A box contains 5 white balls , 3 blue balls and 8 red balls , all the balls are identical. A ball is drawn blindly.

What is the probability that the drawn ball is :

(1) White. **(2)** Not red.

15 El-Fayoum Governorate

Answer the following questions : (Calculators are permitted)

1 ***Choose the correct answer form these between 6 rackets :***

(a) $\mathbb{Z} - \mathbb{N}$ = ... ($\mathbb{Z}^+$ *or* $\mathbb{Z}^-$ *or* $\mathbb{Z}$ *or* $\varnothing$)

(b) $(-1)^8$ ..... $(-1)^9$ (= *or* < *or* > *or* ≤)

(c) A circle whose radius length is 7 cm. , then the surface area of this circle = ... cm^2. $\left(\pi = \frac{22}{7}\right)$ (154 *or* 38.5 *or* 22 *or* 49)

(d) In an experiment of throwing a fair die once , if the event A is event of appearance of a number greater than 6 , then P (A) = ...
($\frac{5}{6}$ *or* $\frac{1}{2}$ *or* $\frac{1}{6}$ *or* zero)

2 ***Complete each of the following :***

(a) The equation : $x + 3 = 5$ of the ..... degree.

(b) $|-4| + (-11)^{zero}$ = ...

(c) If $a \in \{2 , -3\} \cap \{5 , -3\}$, then a = ...

(d) The sum of the measure of the accumulative angles about the centre of the circle = ...°

3 (a) Find the solution set of the inequality : $x + 4 \geq 5$ in $\mathbb{Z}$

(b) Find the result of the following : $\frac{(-3)^3 \times (-3)^2}{(-3)^4}$

4 (a) A cube whose edge length equals 10 cm.
Calculate its lateral surface area and total surface area.

(b) Find the solution set of the equation : $2x + 9 = 19$ in $\mathbb{Z}$

5 (a) Determine in the coordinates plane the positions of the points A (1 , 4) , B (1 , 2) , C (3 , 2) , then find the image of the triangle ABC by translation $(x + 2 , y + 2)$

(b) ***The following table shows the percentage of the favorite sport for the pupils in one of the schools :***

The favorite sport	Football	Handball	Basketball
The percentage	50 %	30 %	20 %

Represent these data by circular sectors.

16 Beni Suef Governorate

Answer the following questions :

1 ***Complete the following :***

(a) 2 , 6 , 18 , 54 , ... , ... (in the same pattern)

(b) 3 km. = ... metres.

(c) A die is thrown one time, then the probability of appearing of the number 5 = ...

(d) The surface area of the circle of radius length 7 cm. = ... π cm^2.

2 ***Choose the correct answer from those given :***

(a) $(-19)^{zero} + (19)^{zero}$ = ... (zero *or* −1 *or* 1 *or* 2)

(b) If $\varnothing$ is the empty set , then P ($\varnothing$) = ... (zero *or* 2 *or* 1 *or* $\frac{1}{2}$)

(c) If $x = -1$, $y = 2$, then the value of $x + y$ = ...
(2 *or* 3 *or* 1 *or* −1)

(d) The number of lines of symmetry of the isosceles triangle = ...
(3 *or* 1 *or* 2 *or* zero)

3 (a) Use the properties of addition in $\mathbb{Z}$ to find the result of :
(−17) + 19 + 17 (State the property used in each step)

(b) A cuboid , its length is 6 cm., its width is 4 cm. and its height is 8 cm.
Find : (1) The lateral area. (2) The total area.

4 (a) Find the solution set of the inequality : $2x + 9 < 1$ where $x \in \mathbb{Z}$, then represent the solution set on the number line.

(b) If the image of the point (a , b) by the translation (3 , −2) is the point (−4 , 5) Find the coordinates of the point (a , b)

5 (a) Given that the substitution set is L = {0 , 1 , 2 , 3}
Find the solution set of the equation : $x + 3 = 5$

(b) A clerk in on institution , she contributes with her husband by her salary as follows :
25 % for house rent , 50 % for food and expenses and 25 % for savings.
Represent these data by using the circular sectors.

17 El-Menia Governorate

Answer the following questions :

1 ***Choose the correct answer from those given :***

(a) $\mathbb{N} \cup \mathbb{Z}$ = ... ($\mathbb{Z}$ *or* $\mathbb{N}$ *or* $\mathbb{Z}^-$ *or* $\mathbb{Z}^+$)

(b) The set of solution of the equation : $x + 3 = 5$ in $\mathbb{Z}$ is .....

($\{-8\}$ *or* $\{-2\}$ *or* $\{2\}$ *or* $\{8\}$)

(c) If a dice is tossed once , then the probability of getting an even number = ... (0 *or* 2 *or* 1 *or* 0.5)

(d) $3 \times 4 + 30 \div 10$ = ... (15 *or* 31 *or* 30 *or* 21)

2 ***Complete the following :***

(a) $|-5| + |7|$ = ...

(b) $3.75 + 2.5$ = ... $\simeq$ ..... (Approximate to nearest $\frac{1}{10}$)

(c) If the perimeter of one face of a cube = 12 cm., then its total area = ... cm^2

(d) If the probability that the pupil solve the problem is 0.7 , then the number of problems expected to be solved from the same kind from 20 problems equals .....

3 (a) Find the result of : $\frac{(2)^6 \times (2)^5}{2 \times (2)^3}$

(b) The perimeter of the base of a cuboid is 32 cm., its height = 10 cm., the length of its base = 9 cm. Calculate :

(1) Its lateral area. (2) Its total area.

4 (a) Find the solution set in $\mathbb{Z}$ of the equation : $2x + 9 = 3$

(b) Find in $\mathbb{N}$ the set of solution of the inequality : $3x - 2 < 7$

5 (a) Find the area of a carpet in the shape of a circle of radius length 3.5 m. (Consider $\pi = \frac{22}{7}$)

(b) ***The following table shows the percentage of the production of a factory of electric sets (4 kinds) :***

Type the set	TV	Washing machine	Refrigerator	Cooker
Amount of the production	35 %	25 %	15 %	25 %

Represent these data by pie charts.

18 Assiut Governorate

Answer the following questions : (Calculator is allowed)

1 ***Choose the correct answer from those given :***

(a) $\mathbb{Z}^+ \cup \{0\}$ = ... ($\mathbb{N}$ *or* $\mathbb{Z}^-$ *or* $\mathbb{Z}$ *or* $\mathbb{Z}^+$)

(b) The number which satisfies the inequality $x > -3$ is .....

(-3 *or* -4 *or* -2 *or* -5)

(c) If $2x = -4$, $x \in \mathbb{Z}$, then the set of solution is .....

($\{2\}$ *or* $\{-2\}$ *or* $\{4\}$ *or* $\{-4\}$)

(d) If $x = -1$, $y = 2$, then the negative number in the following is .....

($x^2 + y^2$ *or* $x + y$ *or* $x^2 + y$ *or* $x - y$)

2 ***Complete the following :***

(a) The image of the point $(2 , -1)$ by the translation $(-3 , 5)$ is (..... , ...)

(b) In an experiment of throwing a fair die once. If A is the event of appearing a number less than 2 , then P (A) = ...

(c) The result of : $-4[3 + (-1)]$ = ...

(d) The sum of the edge lengths of a cube = 24 cm., then the area of one face = ... cm^2

3 (a) (1) Find the result of : $\frac{5^3 \times 5^4}{5^7}$

(2) A circle , its diameter length is 14 cm. Calculate its surface area. (Consider $\pi = \frac{22}{7}$)

(b) Find the solution set in $\mathbb{N}$ of the equation : $x + 1 = |-3|$

4 (a) Find the set of solution of the inequality : $x + 2 \leq 6$, $x \in \mathbb{N}$

(b) A box contains 4 white balls , 7 red balls , one ball is drawn randomly. Find the probability that the drawn ball is :

(1) White. (2) Not white.

5 (a) The perimeter of the base of a cuboid is 32 cm. , its height = 10 cm. and the length of its base = 9 cm. Calculate :

(1) Its lateral area. (2) Its total area.

(b) ***The following table shows the percentage of the number of students participants in the school activities :***

The activity	Culture	Sport	Social	Art
The percentage	10 %	45 %	20 %	25 %

Represent these data by circular sectors.

19 Souhag Governorate

Answer the following questions : (Calculator is allowed)

1 ***Complete the following :***

(a) $\mathbb{Z} - \mathbb{N}$ = ...

(b) The inequality is a mathematical sentence .....

(c) If a die is rolled once , then the probability of getting even number = ...

(d) A prime number between 1 and 10 is .....

2 ***Choose the correct answer between brackets :***

(a) $3^2 + 3^2 + 3^2$ = ... (2^6 or 4^6 or 3^3 or 2^9)

(b) The measure of the angle for the circular sector of a quarter of the circle = ... (30° or 45° or 60° or 90°)

(c) The image of point (3 , – 2) by translation (4 , 2) is .....

((7 , 0) or (– 7 , 0) or (– 1 , 4) or (1 , 7))

(d) A rhombus whose diagonal lengths are 6 cm. and 8 cm. , then its area = ... cm^2 (48 or 24 or 42 or 96)

3 (a) Find the result of the following : $\frac{(-2)^7 \times (-2)^5}{(-2)^9}$

(b) Find the solution set of the equation :

$2x + 4 = -14$ (Where $x \in \mathbb{Z}$)

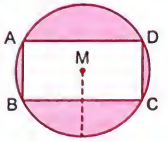
4 (a) A cuboid whose length is 15 cm. , its width is 5 cm. and its height is 6 cm. Find :

(1) The lateral area. (2) The total area.

(b) Find the solution set in $\mathbb{N}$ of the inequality : $3x - 2 < 7$

4 (a) ***In the opposite figure :***

M is a circle its radius length is 5 cm. , a rectangle was drawn inside it. Its length is 8 cm. and its width is 4 cm. Find the area of the shaded part (consider $\pi = 3.14$)



(b) ***The following table shows the percentage of the production of one factory for 4 kinds of the electric sets :***

Kind of the set	TV	Washing machine	Refrigerator	Cooker
The percentage	35 %	25 %	15 %	25 %

Represent these data by pie chart.

20 Qena Governorate

Answer the following questions : (Calculator is allowed)

1 ***Choose the correct answer between brackets :***

(a) $\mathbb{Z}^+ \cap \mathbb{Z}^-$ = ... (zero or 1 or – 1 or $\varnothing$)

(b) If $x + 2 = |-4|$, then x = ... (– 2 or 2 or – 6 or 6)

(c) Which of the following can be probability of an event ?

(1.2 or $\frac{17}{16}$ or 5^0 or 101 %)

(d) The image of the point (– 4 , 3) by the translation (– 1 , – 4) is .....

((– 5 , 7) or (– 5 , – 1) or (– 7 , 3) or (– 3 , – 1))

2 ***Complete each of the following :***

(a) $7^0 + (-7)^0 =$ .....

(b) The total area of the cube = area of one face × .....

(c) A fair die is thrown once , then the probability of appearance of even prime number is .....

(d) The integer number which before zero is ..... and the integer number which after zero is .....

3 (a) Find the value of :

(1) $\frac{3^4 \times (-3)^5}{3^7}$

(2) $6 \times [(-2) + (-7)]$ by using the properties of multiplication in $\mathbb{Z}$

(b) Find the S.S. of the equation : $2x + 9 = -23$, $x \in \mathbb{N}$

4 (a) Find the S.S. of the inequality : $3x - 2 \geq 4$, $x \in \mathbb{Z}$

(b) The length of a cuboid is 9 cm. , its width is 4 cm. , its height is 8 cm. Find its total area.

5 (a) A circle with circumference 44 cm. , calculate its surface area.

(b) ***The following table shows the percentage of eggs production in three farms :***

The farm	First	Second	Third
The percentage of production	25 %	.....	40 %

(1) Complete the table.

(2) Represent these data by using the circular sectors.

21 Aswan Governorate

Answer the following questions : (Calculator is allowed)

1 ***Choose the correct answer from those given :***

(a) If $a \in \{2 , -5 , -3\} \cap \{5 , -2 , -3\}$, than a = ...

(2 *or* −3 *or* −5 *or* 5)

(b) $(-19)^{zero} + (19)^{zero}$ = ... (−1 *or* zero *or* 1 *or* 2)

(c) A circle of diameter length 8 cm. , then its area = ... π cm^2

(4 *or* 8 *or* 16 *or* 64)

(d) A fair die is thrown once , then the probability of appearing of the number 5 equals ..... (zero *or* $\frac{1}{6}$ *or* $\frac{5}{6}$ *or* 1)

2 ***Complete the following :***

(a) 89.25 ≃ ..... (to the nearest tenth)

(b) 7 , 3 , − 1 , ... , ... (in the same pattern)

(c) The probability of the impossible event = ...

(d) If $x + 3 = |-7|$, then x = ...

3 (a) Find the result of : $\frac{(-2)^5 \times (-2)^7}{(-2)^9}$

(b) If the image of the point (a , b) by the translation (3 , − 2) is the point (− 4 , 5) , find the coordinates of the point (a , b)

4 (a) Find the solution set of the inequality : $4x + 1 < 13$ (where $x \in \mathbb{Z}$)

(b) A cube of edge length 6 cm. , find its lateral area and its total area.

5 (a) Find the solution set of the equation : $2x + 1 = -9$ in $\mathbb{Z}$

(b) ***The following table shows the percentage of the production of chickens in 4 farms monthly :***

Farm	1st	2nd	3rd	4th
The percentage	40 %	25 %	20 %	15 %

(1) Represent these data by circular sectors.

(2) If the total production of these farms in one of months was 12000 chickens. Find the production of first farm of chicken.

22 Red Sea Governorate

Answer the following questions :

1 ***Choose the correct answer from those given :***

(a) When tossing a die once , then the probability of getting a number divisible by 5 equals ..... ($\frac{1}{2}$ *or* $\frac{1}{3}$ *or* $\frac{5}{6}$ *or* $\frac{1}{6}$)

(b) If the perimeter of base of a cube is 20 cm. , then its lateral area = ... cm^2 (80 *or* 120 *or* 100 *or* 150)

(c) The perimeter of a rectangle is 16 cm. , its width = 3 cm. , then its area = ... cm^2 (15 *or* 39 *or* 48 *or* 24)

(d) If n is a negative integer number. Which of the following is the smallest ?

(3 + n *or* 3 n *or* $\frac{-3}{n}$ *or* 3 – n)

2 ***Complete the following :***

(a) $\frac{(-3)^3 \times (-3)^4}{(-3)^5}$ = ...

(b) If $7x = -42$, then the value of x = ...

(c) If $\varnothing$ is the empty set , then P ($\varnothing$) = ...

(d) The image of the point (8 , – 10) by translation (– 3 , 4) is .....

3 (a) Find the result of : $(5 + |-3|) \times (-11)$

(b) Find the solution set of the equation in $\mathbb{Z}$: $4x - 1 = 15$

4 (a) Find the solution set of the inequality in $\mathbb{N}$: $3x + 2 \leq 11$

(b) A cuboid-shaped box without a lid , its length is 7 cm. , its width is 3 cm. and its height is 4 cm. Calculate its total area.

5 (a) ***In the opposite figure :***

A circle M of radius length 3.5 cm. is divided into five equal circular sectors , find the surface area of one sector $\left(\pi = \frac{22}{7}\right)$

(b) ***The following table shows the percentage of production of meat in 3 slaughter houses during a month :***

The slaughter	First	Second	Third
The percentage	20 %	30 %	50 %

Represent these data by pie charts.